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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,847	06/20/2003	Keith C. Hong	008-02	8487
27569	7590	08/14/2006		
PAUL AND PAUL 2000 MARKET STREET SUITE 2900 PHILADELPHIA, PA 19103			EXAMINER TSOY, ELENA	
			ART UNIT 1762	PAPER NUMBER

DATE MAILED: 08/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/600,847	HONG ET AL.	
	Examiner	Art Unit	
	Elena Tsoy	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 12 July 2006.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 3-21,23,26 and 27 is/are pending in the application.
- 4a) Of the above claim(s) 26 and 27 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 3-21 and 23 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

Response to Amendment

Amendment filed on July 12, 2006 has been entered. Claims 1-2, 22, 24-25 have been cancelled. Claims 3-21, 23, 26, 27 remain pending in the application. Claims 26-27 remain being withdrawn from consideration as directed to a non-elected invention.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3-11, 16-21, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skadulis (US 3,528,842) in view of Joedicke (US 4,378,408).

Skadulis are applied here for the same reasons as forth in paragraph 2 of the Office Action mailed on 3/2/2006. Skadulis teach raw mineral granules (claimed inert base particles) (See column 3, lines 44-46) coated with a first layer containing algicidal copper compounds (claimed first intermediate particles) (See column 5, lines 20) and a second layer (claimed first intermediate particles) having containing pigments such as TiO₂ (See column 5, lines 30).

Skadulis fails to teach that first layer further contains a void-forming material that release gaseous material at temperatures above 90°C, and have an average particle size no larger than 2 mm, which form pores upon firing, and the second layer does not have a void-forming material (Claim 3).

Joedicke '408 teaches that the addition of inexpensive gas-forming compounds such as hydrogen peroxide, sodium perborate (NaBO₃) to a coating composition containing a pigment such as titanium dioxide (TiO₂), kaolin clay, sodium silicate greatly enhance film opacity and afford significant pigment reductions, *particularly* TiO₂ in whites, where the coating composition is intended to be used in coatings on roofing granules, by undergoing chemical and/or thermal decomposition to gaseous products early in the film drying process and resulting in the uniform dispersion of microscopic light-scattering *microvoids* (i.e. gas-forming particles

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should have claimed particle size of less than 2 mm to produce microvoids) throughout the film (See column 2, lines 17-68; column 3, lines 1-16). The granules may be coated in one or more coats with any desired amount of coating material and gas forming compound may be used in any one or more of the coatings (See column 5, lines 38-41). In other words, Joedicke '408 teaches that roofing granules may be coated in multiple coats with any desired amount of coating material and gas forming compound may be used in any one of multiple coatings to greatly enhance film opacity and afford significant pigment reductions, particularly TiO₂ in whites.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have added inexpensive gas-forming compounds such as hydrogen peroxide, sodium perborate (NaBO₃) to an algicidal coating composition for making a *first* coating layer on roof granules in Skadulis with the expectation of providing algicidal roof granules with the desired enhanced film opacity and significant pigment reductions, because Joedicke '408 teaches that roofing granules may be coated in one or more coats with any desired amount of coating material and gas forming compound may be used in any one of multiple coatings to greatly enhance film opacity and afford significant pigment reductions, particularly TiO₂ in whites.

As to pore size, thickness and concentration limitations, It is held that it is not inventive to discover the optimum or workable ranges of result-effective variables by routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant pore size, thickness and concentration parameters (including those of claimed invention) in Skadulis in view of Joedicke '408 through routine experimentation in the absence of showing of criticality.

3. Claims 9, 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skadulis in view of Joedicke '408, further in view of McMahon (US 3,507,676) for the reasons of record set forth in paragraph 3 of the Office Action mailed on 3/2/2006.

4. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skadulis in view of Joedicke '408, further in view of Hojaji et al (US 4,430,108) for the reasons of record set forth in paragraph 4 of the Office Action mailed on 3/2/2006.

Response to Arguments

5. Applicants' arguments filed July 12, 2006 have been fully considered but they are not persuasive.

(A) Applicants argue that the rejection mailed on 3/2/2006 is not applicable to the amended claims, which require that the outer coating layer material be free of void-forming material. Since the postulated motivation to add the void-forming materials to the coating compositions is to create light-scattering microvoids, one of ordinary skill in the art would not be motivated by the cited combination of prior art references to add a void-forming material to the inner coating layer of a roofing granule having an inner coating layer and an outer layer, since the inner layer would be concealed by the pigmented outer layer.

The Examiner respectfully disagrees with this argument because, as was discussed above, Joedicke '408 teaches that roofing granules may be coated in multiple coats with any desired amount of coating material and gas forming compound may be used in any one of multiple coatings to greatly enhance film opacity and afford significant pigment reductions, particularly TiO₂ in whites (See column 5, lines 38-41).

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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7 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Thursday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy
Primary Examiner
Art Unit 1762

ELENA TSOY
PRIMARY EXAMINER


August 10, 2006